

ARTICLE I AMENDMENT**Claims**

1. A compound capable of interfering with the interaction between a functional cell surface receptor selected from the family of fibroblast growth factor receptors comprising fibroblast growth factor receptor 1 (FGFR1), fibroblast growth factor receptor 2 (FGFR2), fibroblast growth factor receptor 3 (FGFR3) and fibroblast growth factor receptor 4 (FGFR4), and a polypeptide having a binding site to said functional cell-surface receptor, said binding site comprising at least one sequence selected from the sequences set forth in SEQ ID NOs:1-146 or fragments, or variants, or homologues of said sequences, wherein said compound is a contiguous amino acid sequence of 6 to 16 amino acid residues comprising a sequence selected from the sequences set forth in SEQ ID NOs: 2-146 or a fragment, variant, or homologue thereof.
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2. The compound according to claim 1, wherein the cell-surface receptor and the polypeptide are heterologous proteins.
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3. The compound according to claims 1 or 2, wherein the cell-surface receptor and/or the polypeptide comprise at least two immunoglobulin (Ig)-like domains and/or at least two fibronectin type 3 (F3) domains, or at least one Ig-like and one F3 domain.
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4. The compound according to claim 1, wherein the fibroblast growth factor receptor is FGFR1, or a fragment, or a variant thereof, or a functional homologue of said receptor.
25
5. The compound according to claim 1, wherein the polypeptide is selected from the group comprising transmembrane, cell-surface-associated, extracellular matrix-associated and soluble proteins.
- 30 6. The compound according to claims 1 or 5, wherein the polypeptide is selected from the group comprising cell adhesion molecules, cell-surface receptors, heparan sulphate proteoglycans, metalloproteases, extracellular matrix molecules and growth factors.

7. The compound according to claim 6, wherein the cell adhesion molecule is selected from

- Neural Cell Adhesion Molecule (NCAM),
- Neural cell adhesion molecule L1,
- Neural Cell Adhesion Molecule-2 (NCAM-2),
- Neuron-glia Cell Adhesion Molecule (Ng-CAM),
- Neural cell adhesion molecule CALL,
- Neuroglian,
- Neuron-glia-related Cell Adhesion Molecule (Nr-CAM),
- Axonin-1/TAG-1,
- Axonal-associated Cell Adhesion Molecule (AxCAM),
- Myelin-Associated Glycoprotein (MAG),
- Neural cell adhesion molecule BIG-1,
- Neural cell adhesion molecule BIG-2,
- Fasciclin (FAS-2),
- Neural cell adhesion molecule HNB-3/NB-3
- Neural cell adhesion molecule HNB-2/NB-2,
- Cadherin,
- Junctional Adhesion Molecule-1 (JAM-1),
- Neural cell adhesion F3/F11
- Neurofascin,
- B-lymphocyte cell adhesion molecule CD22,
- Neogenin (NEO1),
- Intercellular Cell Adhesion Molecule-5,
- Galactose binding lectin-12 (galectin-12),
- Galactose binding lectin-4 (galectin-4),
- or fragments, or variants thereof.

8. The compound according to claim 6, wherein the functional cell-surface receptor is selected from

- Fibroblast Growth Factor Receptor 1 (FGFR1),
- Fibroblast Growth Factor Receptor 2 (FGFR2),
- Fibroblast Growth Factor Receptor 3 (FGFR3),
- Fibroblast Growth Factor Receptor 4 (FGFR4),
- Neurotrophin Tyrosin Kinase Type-2 (NTRKT-2),

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- Leukocyte Antigen Related Protein-Tyrosine Phosphatase (LAR-PTPRF),

- Nephrin,

- Protein-Tyrosine Phosphatase Receptor type S (PTPRS),

- Protein-Tyrosine Phosphatase Receptor type kappa (R-PTP-kappa),

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- Protein-Tyrosine Phosphatase Receptor type D (PTPRD),

- Ephrin type-A receptor 8 (EPHA8/Tyrosine-Protein Kinase Receptor EEK),

- Ephrin type-A receptor 3 (EPHA8/Tyrosine-Protein Kinase Receptor ETK-1/CEK4),

- Ephrin type-A receptor 2,

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- Insulin Receptor (IR),

- Insulin-like Growth Factor-1 Receptor (IGF-1),

- Insulin-related Receptor (IRR),

- Tyrosine-Protein Kinase Receptor Tie-1,

- Roundabout receptor-1 (robo-1),

15

- Neuronal nicotinic acetylcholine receptor alpha 3 subunit (CHRNA3),

- Neuronal acetylcholine receptor alpha 6 subunit,

- Platelet-Derived Growth Factor Receptor Beta (PDGFRB),

- Interleukin-6 Receptor (IL-6R),

- Interleukin-23 Receptor (IL-23R),

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- Beta-common cytokine receptor of IL-3, IL5 and GmCsf,

- Cytokine Receptor-Like molecule 3 (CRLF1),

- Class I Cytokine Receptor (ZCYTOR5)

- Netrin-1 receptor DCC,

- Leukocyte Fc Receptor-like Protein (IFGP2),

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- Macrophage Scavenger Receptor 2 (MSR2), or

- Granulocyte Colony Stimulating Factor Receptor (G-CSF-R),

or fragments, or variants thereof.

9. The compound according to claim 6, wherein the heparan sulphate proteoglycan
30 is perlecan, or a fragment, or a variant thereof.

10. The compound according to claim 6, wherein the metalloprotease is a disintegrin
and metalloprotease (ADAM) selected from

35

- ADAM-8,

- ADAM-19,

- ADAM-8,
- ADAM-12,
- ADAM-28,
- ADAM-33 precursor,
- 5 - ADAM-9,
- ADAM-7,
- ADAM-1A Fertilin alpha, or
- ADAM-15, or
- Metalloproteinase-desintegrin domain containing protein TECAM, or
- 10 - Metalloproteinase 1.

or fragments, or variants thereof.

11. The compound according to claim 6, wherein the extracellular matrix molecule is selected from
 - Collagen type VII,
 - Fibronectin, or
 - Tenascin-R,or fragments, or variants thereof.
- 15 12. The compound according to claim 6, wherein the growth factor is Cytokine-like factor-1 (CLF-1), or a fragment, or a variant thereof.
- 20 13. The compound according to claim 1, wherein the interaction between a cell-surface receptor and a polypeptide is a low affinity interaction.
- 25 14. The compound according to claim 13, wherein the affinity of interaction is within the range of K_d 10^{-3} - 10^{-11} M.
- 30 15. The compound of claim 1, wherein the compound comprises any of the amino acid sequences set forth on SEQ ID NOS: 1-10, 100, 125 or variants, or fragments of said sequences, or a combination of said sequences.
16. The compound of claim 15, wherein the compound comprises a contiguous amino acid sequence having at least 60% homology to any of the sequences set forth

in SEQ ID NOS: 1-10, 100, 125, or a variant of said amino acid sequence, or a fragment of said amino acid sequence.

17. The compound of claim 15, wherein the compound comprises any of the amino acid sequences set forth in SEQ ID NOS: 11-99, 101-124, 126-146 or variants, or fragments of said sequences, or a combination of said sequences.

18. A screening method for a candidate compound capable of modulating the interaction between at least two different proteins, wherein one of the at least two different proteins is represented by a functional cell surface receptor selected from the family of fibroblast growth factor receptors comprising FGFR1, FGFR2, FGFR3 and FGFR4, and the other of the at least two different proteins is represented by a polypeptide having a binding site to said receptor, wherein at least a part of said binding site comprises at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or fragments or variants of said homologues, comprising

- i) providing the at least two different proteins;
- ii) providing a candidate compound;
- iii) presenting the candidate compound of (ii) to the at least two different proteins of (i);
- iv) determining the interaction between the at least two different proteins before and after the presenting the candidate compound to said proteins;
- v) determining whether the interaction between the at least two different proteins has been modulated by the presented compound,
- vi) selecting a compound capable of modulating the interaction between the at least two different proteins.

19. The screening method according to claim 18, wherein the polypeptide is selected from the group comprising polypeptides as defined in any of the claims

30 12.

20. The screening method according to claim 19, wherein the polypeptide is NCAM, or fragments, or variants thereof, a functional homologue of NCAM.

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21. Use of a compound obtainable by the screening method according to claims 18-
22 for the manufacture of a medicament for the treatment of normal, degener-
ated or damaged NCAM presenting cells.

5 22. Use of a compound obtainable by the screening method according to claims 18-
22 for the manufacture of a medicament for the treatment of diseases and condi-
tions of the central and peripheral nervous system, or of the muscles or of vari-
ous organs.

10 23. The use according to claim 21 or 22, wherein the compound is for the manufac-
ture of a medicament for the treatment of diseases or conditions of the central
and peripheral nervous system, such as postoperative nerve damage, traumatic
nerve damage, impaired myelination of nerve fibers, postischaemic damage,
e.g. resulting from a stroke, Parkinson's disease, Alzheimer's disease, Hunting-
ton's disease, dementias such as multiinfarct dementia, sclerosis, nerve degen-
eration associated with diabetes mellitus, disorders affecting the circadian clock
or neuro-muscular transmission, and schizophrenia, mood disorders, such as
manic depression; for treatment of diseases or conditions of the muscles includ-
ing conditions with impaired function of neuro-muscular connections, such as af-
ter organ transplantation, or such as genetic or traumatic atrophic muscle dis-
orders; or for treatment of diseases or conditions of various organs, such as de-
generative conditions of the gonads, of the pancreas such as diabetes mellitus
type I and II, of the kidney such as nephrosis and of the heart, liver and bowel.

15 24. The use according to claim 21 or 22, wherein the compound is for the manufac-
ture of a medicament for the treatment of postoperative nerve damage, tra-
umatic nerve damage, impaired myelination of nerve fibers, postischaemic, e.g.
resulting from a stroke, Parkinson's disease, Alzheimer's disease, Huntington's
disease, dementias such as multiinfarct dementia, sclerosis, nerve degeneration
associated with diabetes mellitus, disorders affecting the circadian clock or
neuro-muscular transmission, and schizophrenia, mood disorders, such as
manic depression.

20 25. The use according to claim 22 or 23, wherein the compound is for the manufac-
ture of a medicament for the promotion of wound-healing.

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26. The use according to claim 21 or 22, wherein the compound is for the manufacture of a medicament for the treatment of cancer.

5 27. The use according to claim 26, wherein the cancer is any type of solid tumors requiring neoangiogenesis.

10 28. The use according to claim 21 or 22, wherein the compound is for the manufacture of a medicament for the prevention of cell death of heart muscle cells, such as after acute myocardial infarction, or after angiogenesis.

29. The use according to claim 21 or 22, wherein the compound is for the manufacture of a medicament for revascularisation.

15 30. The use according to claim 21 or 22, wherein the compound is for the manufacture of a medicament for the stimulation of the ability to learn and/or the short and/or long-term memory.

20 31. An assay for sequential screening of a candidate compound capable of modulating the interaction between at least two different proteins, wherein one of the least two different proteins is represented by a functional cell-surface receptor selected from the family of fibroblast growth factor receptors comprising FGFR1, FGFR2, FGFR3 and FGFR4, and the other of the at least two different proteins is represented by a polypeptide having a binding site to said receptor, wherein at least a part of said binding site comprises at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or fragments or variants of said homologues, comprising the steps of

25 i) providing the at least one functional cell-surface receptor molecule, or a fragment, or a variant thereof, and the at least one polypeptide having a binding site to said receptor, wherein at least a part of said binding site comprises at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or a fragments or a variants of said homologues,

30 ii) presenting the at least one receptor molecule of step (i) to the at least one polypeptide of step (i), or presenting the at least one polypeptide of step (i) to

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the at least one receptor molecule of step (i) and permitting the interaction between the said receptor and said polypeptide, followed by the

- iii) recording the interaction between the molecules of step (ii),
- iv) presenting the candidate compound to the molecules of step (ii);
- 5 v) recording the interaction between the molecules of step (iv), followed by the
- vi) assessment of at least one effect of the candidate compound on the interaction between the molecules of step (iv), followed by the
- vii) selection of a compound capable of modulating the interaction between the at least one functional cell-surface receptor molecule and the at least one polypeptide of step (i).

10 32. The assay according to claim 31, wherein step (vii) is followed by the steps of

- viii) presenting the selected in step (vii) candidate compound to at least one cell presenting the at least one functional cell-surface receptor molecule, or a fragment, or a variant thereof, and the at least one polypeptide having a binding site to said receptor, wherein at least a part of said binding site comprises at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or a fragments or a variants of said homologues with, and
- 15 ix) assessing at least one effect of the compound on the cell of step (viii).

20 33. The assay according to claims 31 and 32, wherein the recording of interaction

- between the molecules on step (iii) or step (v), and the assessment of the at least one effect of the candidate compound on step (vi) is achieved by using a method selected from the group comprising surface plasmon resonance, nucleic 25 magnetic resonance, sedimentation, immunoprecipitation, two-hybrid system, or resonance energy transfer.

30 34. The assay according to claim 32, wherein the at least one effect of step (ix) is

- being selected from stimulation/inhibition of receptor phosphorylation, intracellular signal transduction, gene expression, cellular adhesion, cell motility, neurogenesis, apoptosis, cell proliferation or synaptic plasticity.

35 35. A method for molecular design for a compound capable of modulating the interaction between at least two different proteins, wherein one of the least two dif-

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ferent proteins is represented by a functional cell-surface receptor selected from the family of fibroblast growth factor receptors comprising FGFR1, FGFR2, FGFR3 and FGFR4, and the other of the at least two different proteins is represented by a polypeptide having a binding site to said receptor, wherein at least a part of said binding site comprises at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or fragments or variants of said homologues comprising using structural data on the binding site of NCAM for FGFR.

10 36. A method for isolating a candidate compound capable of modulating the interaction between at least two different proteins, wherein one of the least two different proteins is represented by a functional cell-surface receptor selected from the family of fibroblast growth factor receptors comprising FGFR1, FGFR2, FGFR3 and FGFR4, and the other of the at least two different proteins is represented by a polypeptide having a binding site to said receptor, wherein at least a part of said binding site comprises at least one of the séquences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or fragments or variants of said homologues, comprising the steps of

15 i) providing a method for sequential screening the candidate compound as defined in claim 18 and/or

20 ii) providing a method for molecular design of the candidate compound as defined in claim 35,

 iii) isolating the candidate compound.

25 37. A peptide fragment having any of the following amino acid sequences:

 NIEVWVEAENALGKKV (SEQ ID NO: 2),
 ATNRQGKVKAFAHL (SEQ ID NO: 3),
 RYVELYVVADSQEFAQK (SEQ ID NO: 4),
 VAENSRGKNVAKG (SEQ ID NO: 5),
30 GEYWCVAENQYGQR (SEQ ID NO: 6),
 RLAALNGKGLGEIS (SEQ ID NO: 7),
 KYIAENMKAQNVAKEI (SEQ ID NO: 8),
 TIMGLKPETRYAVR (SEQ ID NO: 9),
 KGLGEISAATEFKT (SEQ ID NO: 10),
35 NMGIWVQAENALG (SEQ ID NO: 11),

IWVQAENMLG (SEQ ID NO: 12),
EIWVEATNRLG (SEQ ID NO: 13),
VWVQAANALG (SEQ ID NO: 14),
EVWIEKDPAKGRI (SEQ ID NO: 15),
5 ATNKGGEVKKNGHL (SEQ ID NO: 16),
KYVELYLVADYLEFQK (SEQ ID NO: 17),
RYVELYVVVDNAEFQ (SEQ ID NO: 18),
KYVELVIVADNREFQR (SEQ ID NO: 19),
KYIEYYLVLDNGEFKR (SEQ ID NO: 20),
10 RYLELYIVADHTLF (SEQ ID NO: 21),
KYVEMFVVVNHQRFQ (SEQ ID NO: 22),
RYVELFIIVVDKERY (SEQ ID NO: 23),
KYVELFIVADDTVYRR (SEQ ID NO: 24),
KFIELFWADEYVYRR (SEQ ID NO: 25),
15 KIVEKVIVADNSEVRK (SEQ ID NO: 26),
VELVIVADHSEAQK (SEQ ID NO: 27),
VAENSRGKNIAKG (SEQ ID NO: 28),
IAENSRGKNVARG (SEQ ID NO: 29),
AENSRGKNSFRG (SEQ ID NO: 30),
20 IASNLRGRNLAKG (SEQ ID NO: 31),
IPENSLGKTYAKG (SEQ ID NO: 32),
IAENMKAQNEAK (SEQ ID NO: 33),
QFIAENMKSHNETKEV (SEQ ID NO: 34),
GEYWCVAKNRVGQ (SEQ ID NO: 35),
25 GSYTCVAENMVGK (SEQ ID NO: 36),
GKYVCVGTNMVGER (SEQ ID NO: 37),
GNYTCVVENEYG (SEQ ID NO: 38),
GEYTCLAGNSIG (SEQ ID NO: 39),
QYYCVAENGYG (SEQ ID NO: 40),
30 GEYYQEAEQNGYG (SEQ ID NO: 41),
GNYTCLVENEYG (SEQ ID NO: 42),
GMYQCLAENAYG (SEQ ID NO: 43),
GMYQCAENTHG (SEQ ID NO: 44),
GIYYCLASNNYG (SEQ ID NO: 45),
35 GGYYCTADNSYG (SEQ ID NO: 46),

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GEYQCFARNDYG (SEQ ID NO: 47),
GEYFCLASNKMG (SEQ ID NO: 48),
GEYQCFARNKFG (SEQ ID NO: 49),
GEYFCLASNKMG (SEQ ID NO: 50),
5 GEYYCTADNNYG (SEQ ID NO: 51),
GNYSCAEENAWGTK (SEQ ID NO: 52),
GEYTCLAENSLG (SEQ ID NO: 53),
GEYECVAENGRLG (SEQ ID NO: 54),
GNYTCVVENKFGR (SEQ ID NO: 55),
10 GEYTCLAGNSIG (SEQ ID NO: 56),
GEYFCVASNPIG (SEQ ID NO: 57),
EYTCIANNQAGE (SEQ ID NO: 58),
GMYQCVAENKHLG (SEQ ID NO: 59),
GEYMCTASNTIGQ (SEQ ID NO: 60),
15 EYVCIAENKAGEQ (SEQ ID NO: 61),
GDYTLIAKNEYGK (SEQ ID NO: 62),
GFYQCVAENEAG (SEQ ID NO: 63),
GKYECVATNSAGTR (SEQ ID NO: 64),
GEYFCVYNNSLG (SEQ ID NO: 65),
20 GEYECAATNAHGR (SEQ ID NO: 66),
GAYWCQGTNSVGK (SEQ ID NO: 67),
GTYSCVAENILG (SEQ ID NO: 68),
RVAAVNGKGQGDYS (SEQ ID NO: 69),
RVAAINGCGIGPFS (SEQ ID NO: 70),
25 AVLNGKGLG (SEQ ID NO: 71),
ALNGQQLGATS (SEQ ID NO: 72),
RLAAKNRAGLGE (SEQ ID NO: 73),
RLGVVTGKDLGEI (SEQ ID NO: 74),
TVTGLKPETSYMVK (SEQ ID NO: 75),
30 TLTGLKPSTRYRI (SEQ ID NO: 76),
TLTGLQPSTRYRV (SEQ ID NO: 77),
TLLGLKPDTTYDIK (SEQ ID NO: 78),
TLQGLRPETAYELR (SEQ ID NO: 79),
TLRGLRPETAYELR (SEQ ID NO: 80),
35 TLMNLRPKTGYSVR (SEQ ID NO: 81),

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TVSGLKPGTRY (SEQ ID NO: 82),
TISGLKPDTTY (SEQ ID NO: 83),
TLQGLKPDTAY (SEQ ID NO: 84),
LRGLKPWTQYAV (SEQ ID NO: 85),
5 IDGLEPDTEYIVR (SEQ ID NO: 86),
LQGLKPWTQYAI (SEQ ID NO: 87),
TITGLEPGTEYTIQ (SEQ ID NO: 88),
GLKPWTQYAV (SEQ ID NO: 89),
TLASLKPWTQYAV (SEQ ID NO: 90),
10 LMGLQPATEYIV (SEQ ID NO: 91),
KGGMGPMSEAVQFRT (SEQ ID NO: 92),
TLTGLKPDTTYDVK (SEQ ID NO: 93),
ISGLQPETSYSL (SEQ ID NO: 94),
TLLGLKPDTTYDIK (SEQ ID NO: 95),
15 TISGLTPETTYSI (SEQ ID NO: 96),
GNYSCLAENRLGR (SEQ ID NO: 97),
GNYTCVVENRVG (SEQ ID NO: 98),
GTYHCVATNAHG (SEQ ID NO: 99),
LSHNGVLTGYLLSY (SEQ ID NO: 100),
20 NGVLTGVLRY (SEQ ID NO: 101),
NGVLTGYNLRY (SEQ ID NO: 102),
NGNLTGYLLQY (SEQ ID NO: 103),
VDENGVLTGYKIYY (SEQ ID NO: 104),
THNGALVGYSVRY (SEQ ID NO: 105),
25 NGILTEYILKY (SEQ ID NO: 106),
NGILIGYTLRY (SEQ ID NO: 107),
THSGQITGYKIRY (SEQ ID NO: 108),
NGKITGYIIYY (SEQ ID NO: 109),
LSHNGIFTLY (SEQ ID NO: 110),
30 NGILTEYTLKY (SEQ ID NO: 111),
LDPNGIITQYEISY (SEQ ID NO: 112),
NGKITGYIIYY (SEQ ID NO: 113),
HLEVQAFNNGRSGPA (SEQ ID NO: 114),
HTLTVRAYNGAGYGP (SEQ ID NO: 115),
35 HLSVKAYNSAGTGPS (SEQ ID NO: 116),

HLAVKAYNSAGTGPS (SEQ ID NO: 117),
NLEVRAFNSAGDGP (SEQ ID NO: 118),
HTLVLAYNSKGAGP (SEQ ID NO: 119),
LRVLVFNGRGDGP (SEQ ID NO: 120),
5 HIDVSAFNSAGYGP (SEQ ID NO: 121),
HЛАVELFNGR (SEQ ID NO: 122),
LELQSINFLGGQPA (SEQ ID NO: 123),
HFTVRAYNGAGYGP (SEQ ID NO: 124),
HLEVQAFNGRGSQPA (SEQ ID NO: 125),
10 VIADQPTFKYLIK (SEQ ID NO: 126),
TIKGLRPGVVYEGQ (SEQ ID NO: 127),
TLTELSPTQYTVK (SEQ ID NO: 128),
TLDDLAPDTTYLVQ (SEQ ID NO: 129),
TVSDVTPHAIYTVR (SEQ ID NO: 130),
15 IIRGLNASTRYLFR (SEQ ID NO: 131),
TLMNLRPKTGYSVR (SEQ ID NO: 132),
TLTGLKPGTEYEVR (SEQ ID NO: 133),
GPEHLMPSSTYVAR (SEQ ID NO: 134),
RVTGLTPKKTYEFR (SEQ ID NO: 135),
20 LTGLKPGTEYEFR (SEQ ID NO: 136),
EVRVQAVNGGGNGPP (SEQ ID NO: 137),
LIKVVAINDRGE (SEQ ID NO: 138),
VVSIIAVNGREE (SEQ ID NO: 139),
VVSVYAQNQNNGE (SEQ ID NO: 140),
25 TISLVAEKGRHK (SEQ ID NO: 141),
HLEVQAFNGRGSQPA (SEQ ID NO: 142),
HVEVQAFNGRGLGPA (SEQ ID NO: 143),
HVEVQAFNGRGLGPA (SEQ ID NO: 144),
EFRVRAVNGAGEG (SEQ ID NO: 145),
30 VARVRTRLAPGSRLS (SEQ ID NO: 146)
or fragments, or variants thereof.

38. Use of a peptide fragment as defined in claim 37 and/or compound as defined in
any of the claims 1-17 for the manufacture of a medicament for treatment of con-
35 ditions as defined in any of the claims 21-30.

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39. An antibody capable of binding to an epitope comprising a binding site to a cell surface receptor, wherein at least a part of said binding site comprises at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or a fragment or a variant of said antibody.

40. An antibody capable of binding to an epitope comprising at least one of the sequences set forth in SEQ ID NOS: 1-146, or a fragment, or a variant of said antibody.

41. Use of an antibody according to claims 39 or 40 for modulating the interaction between a cell surface receptor, or a fragment or variant thereof, and a polypeptide having a binding site to said receptor, wherein at least a part of said binding site comprises at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or fragments or variants of said homologues.

42. Use of an antibody as defined in claims 39 or 40 for the manufacture of a medicament for treatment of conditions as defined in any of the claims 21-30.

43. Use of an antibody as defined in claims 39 or 40 for determining the presence of a substance comprising an epitope comprising at least one of the sequences set forth in SEQ ID NOS: 1-146, or fragments, or variants, or homologues of said sequences, or fragments or variants of said homologues in a sample.

44. Use of a peptide fragment comprising at least one sequence selected from the sequences set forth in SEQ ID NOS: 1-146 for the production of an antibody as defined in claims 39 and/or 40.

45. A method for producing a pharmaceutical composition comprising the steps of claim 31 and further the step of formulating the compound with pharmaceutically acceptable carrier or solvent.

Abstract of the Disclosure

The present invention relates to a method for modulating the interaction between at least two proteins, wherein at least one of the two proteins is a functional cell-surface receptor and the other protein is the receptor ligand. The invention features a binding site of said functional cell-surface receptor on the receptor ligand and discloses a series of amino acid sequences, which are part of the structure of said binding site and/or involved in the interaction between the receptor and the ligand. Moreover, the present invention features methods for molecular design and screening of a candidate compound capable of modulating the interaction between the functional cell-surface receptor and receptor ligand through the described binding site, and provides a screening assay for identification of such a compound. The invention further describes an antibody capable of binding to the above binding site and/or to an epitope comprising an amino acid sequence essential for executing the receptor ligand interaction through said binding site. The invention also concerns a variety of uses of the disclosed methods, peptide sequences and antibodies. The invention in preferred embodiments concerns the binding site of the fibroblast growth factor receptor (FGFR) on FGFR ligands, compounds capable of modulating the receptor ligand interaction through said binding site, and antibody capable of recognition of said binding site.